

Claims:

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1. A method for inserting a valve stem in a valve stem aperture defined by a wheel comprising:

moving a valve stem and a valve stem aperture relative to one another in a first rotational direction along a curved path to align the valve stem with the valve stem aperture;

locating the valve stem aperture with a first sensor when the valve stem and the valve stem aperture are a first angular distance from one another along the curved path; and

moving the valve stem and the valve stem aperture relative to one another in a second rotational direction along the curved path to align the valve stem with the valve stem aperture; and

locating the valve stem aperture with a second sensor when the valve stem and the valve stem aperture are a second predetermined angular distance from one another along the curved path while moving in a second rotational direction.

2. The method of claim 1 including reducing a relative speed of the valve stem and the valve stem aperture relative to one another in the first rotational direction in response to first sensor locating the valve stem aperture.

3. The method of claim 1 including positioning the first and second sensors on opposite sides of the valve stem along the curved path.

4. The method of claim 1 including moving the valve stem and the



valve stem aperture relative to one another at a greater speed in the first rotational direction than in the second angular direction.

5. The method of claim 1 including the steps of:

moving the valve stem to the valve stem aperture with a robotic apparatus; and

controlling the robotic apparatus in response to the first and second sensors.

6. An apparatus for inserting a valve stem in a valve stem aperture defined by a wheel comprising:

a first sensor for locating a valve stem aperture in a wheel;

a tire stem pin for supporting a valve stem insertable in the valve stem aperture and connected to the first sensor; and

a second sensor for locating the valve stem aperture and connected to said tire stem pin on an opposite side of said tire stem pin relative to said first sensor.

7. The apparatus of claim 6 including:

a robotic apparatus for moving said tire stem pin and said first and second sensors around the wheel to locate the valve stem aperture.

8. The apparatus of claim 6 wherein said first sensor includes a first optical emitter and a first optical receiver and said second sensor includes a second optical emitter and a second optical receiver.

9. The apparatus of claim 8 wherein said first optical emitter and said first optical receiver are aligned along a first path extending substantially parallel to said valve stem holding pin and said second optical emitter and said second optical receiver are aligned along a second path extending substantially parallel to said valve stem holding pin.

10. A method for inserting a valve stem into a valve stem aperture defined by a wheel, comprising the steps of:

providing a work station proximate a robotic stemming assembly having first and second sensors and a stemmer;

moving a wheel to said work station;

moving said assembly around said wheel in a first direction until said sensor detects the aperture;

moving said assembly around said wheel in a second direction until said second sensor detects and locates the aperture; and

inserting a valve stem into the aperture with the stemmer.

11. The method of claim 10 including the step of:

providing a controller operably connected to said assembly.

12. The method of claim 11 including the step of:

signaling said controller with the first sensor a general location of the aperture.

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13. The method of claim 12 including the step of:
signaling said control the location of the aperture with the second sensor
more precisely than the location signaled by said first sensor.

14. The method of claim 13 including the step of:
aligning said stemmer with said aperture in response to said signal
generated by said second sensor.

15. The method of claim 14 including the step of:
moving said assembly in said first direction at a faster rate than said
second direction.

16. The method of claim 15 including the step of:
receiving the wheel from said work station.